

THE ASTROPHYSICAL JOURNAL
CONTENTS OF VOLUME 458, PART 1

1996 FEBRUARY 10, Number 1

	Page	Fiche
LARGE-SCALE STRUCTURE TESTS OF WARM DARK MATTER <i>Stéphane Colombi, Scott Dodelson, & Lawrence M. Widrow</i>	1	36-C1
SMALL GROUPS OF GALAXIES: A CLUE TO A CRITICAL UNIVERSE <i>F. Governato, P. Tozzi, & A. Cavaliere</i>	18	36-D8
QUANTIFYING THE MORPHOLOGIES AND DYNAMICAL EVOLUTION OF GALAXY CLUSTERS. II. APPLICATION TO A SAMPLE OF ROSAT CLUSTERS <i>David A. Buote & John C. Tsai</i>	27	36-E6
BEYOND THE THIN LENS APPROXIMATION <i>Ted Pyne & Mark Birkinshaw</i>	46	36-G1
GRAVITATIONAL LENS MODELS OF ARCS IN ABELL 2218 <i>David W. Saraniti, Vahé Petrosian, & Roger Lynds</i>	57	37-A1
FAR-UV SPECTRAL VARIABILITY IN THE GRAVITATIONAL LENS CANDIDATE UM 425 <i>A. G. Michalitsianos, R. J. Oliveren, & S. P. Maran</i>	67	37-B3
TWO-POINT VELOCITY AND SPATIAL CORRELATION FUNCTIONS OF THE C IV ABSORPTION SYSTEMS TOWARD THE TOLOLO QUASAR GROUP: EVIDENCE FOR SUPERCLUSTERING AT $z \simeq 2$ <i>Nadine Dinshaw & Chris D. Impey</i>	73	37-B12
FAINT BLUE GALAXIES AND THE EPOCH OF DWARF GALAXY FORMATION <i>Arif Babul & Henry C. Ferguson</i>	100	37-E1
THE MOST COMPLETELY SAMPLED ROTATION CURVES FOR GALAXIES <i>Yoshiaki Sofue</i>	120	37-F10
DUST OBSCURATION IN STARBURST GALAXIES FROM NEAR-INFRARED SPECTROSCOPY <i>Daniela Calzetti, Anne L. Kinney, & Thaisa Storchi-Bergmann</i>	132	37-G11
THE SUBARCSECOND RADIO STRUCTURE IN NGC 1068. I. OBSERVATIONS AND RESULTS <i>J. F. Gallimore, S. A. Baum, C. P. O'Dea, & A. Pedlar</i>	136	38-A4
WARM ABSORBER, REFLECTION, AND Fe K LINE IN THE X-RAY SPECTRUM OF IC 4329A <i>M. Cappi, T. Mihara, M. Matsuoka, K. Hayashida, K. A. Weaver, & C. Otani</i>	149	38-B6
X-RAY REPROCESSING BY A MOLECULAR TORUS IN THE SEYFERT 1.9 GALAXY NGC 2992 <i>K. A. Weaver, J. Nousek, T. Yaqoob, R. F. Mushotzky, F. Makino, & C. Otani</i>	160	38-C6
COMPLEX GASEOUS STRUCTURE IN THE NUCLEUS OF NGC 5252 <i>Zlatan I. Tsvetanov, Jon A. Morse, Andrew S. Wilson, & Gerald Cecil</i>	172	38-D7
TRUNCATION OF THE BINARY DISTRIBUTION FUNCTION IN GLOBULAR CLUSTER FORMATION <i>E. Vesperini & David F. Chernoff</i>	178	38-E3
OBSERVATION OF TURBULENT FLUCTUATIONS IN THE INTERSTELLAR PLASMA DENSITY AND MAGNETIC FIELD ON SPATIAL SCALES OF 0.01 TO 100 PARSECS <i>Anthony H. Minter & Steven R. Spangler</i>	194	38-F10
A NEW LOOK AT CARBON ABUNDANCES IN PLANETARY NEBULAE. I. PB 6, Hu 2-1, K648, AND H4-1 <i>R. B. C. Henry, K. B. Kwitter, & J. W. Howard</i>	215	39-A7
NONEQUILIBRIUM PHOTODISSOCIATION REGIONS: IONIZATION-DISSOCIATION FRONTS <i>Frank Bertoldi & B. T. Draine</i>	222	39-B3
A NOTE ON THE EVALUATION OF THE GENERALIZED FERMI-DIRAC INTEGRAL <i>N. Mohankumar & A. Natarajan</i>	233	39-C3

	Page	Fiche
SIMULATIONS OF NONAXISYMMETRIC INSTABILITY IN A ROTATING STAR: A COMPARISON BETWEEN EULERIAN AND SMOOTH PARTICLE HYDRODYNAMICS <i>Scott C. Smith, Janet L. Houser, & Joan M. Centrella</i>	236	39-C10
A PULSAR SURVEY OF 18 SUPERNOVA REMNANTS <i>Peter W. Gorham, Paul S. Ray, Stuart B. Anderson, Shrinivas R. Kulkarni, & Thomas A. Prince</i>	257	39-E6
GEOMETRY OF PULSAR EMISSION AND PULSE WIDTH DISTRIBUTION <i>J. A. Gil & J. L. Han</i>	265	39-F3
RADIATION DOSIMETRY OF BINARY PULSARS <i>David Eichler & Biman B. Nath</i>	275	39-G2
GAMMA-RAY PULSARS: EMISSION FROM EXTENDED POLAR CAP CASCADES <i>Joseph K. Daugherty & Alice K. Harding</i>	278	39-G8
IS THERE EVIDENCE FOR REPEATING GAMMA-RAY BURSTERS IN THE BATSE DATA? <i>David P. Bennett & Sun Hong Rhie</i>	293	40-A12
FORMATION OF LOW-MASS X-RAY BINARIES. I. CONSTRAINTS ON HYDROGEN-RICH DONORS AT THE ONSET OF THE X-RAY PHASE <i>Vassiliki Kalogera & Ronald F. Webbink</i>	301	40-B9
THE CONNECTION BETWEEN SUBMILLIMETER CONTINUUM FLUX AND BINARY SEPARATION IN YOUNG BINARIES: EVIDENCE OF INTERACTION BETWEEN STARS AND DISKS <i>Eric L. N. Jensen, Robert D. Mathieu, & Gary A. Fuller</i>	312	40-C9
THE STABILITY PROPERTIES OF TWO-TEMPERATURE WHITE DWARF RADIATIVE SHOCK WAVES <i>James N. Imamura, Abdossalam Aboasha, Michael T. Wolff, & Kent S. Wood</i>	327	40-D13
MAGNETIC EFFECTS ON OSCILLATIONS IN α Ap STARS <i>W. A. Dziembowski & Phillip R. Goode</i>	338	40-E13
MAGNETIC AND SPIN HISTORY OF VERY YOUNG PULSARS <i>Alexander Muslimov & Dany Page</i>	347	40-F11
HUBBLE SPACE TELESCOPE/FOS SPECTROSCOPY OF VW HYDRI IN SUPEROUTBURST <i>M. Huang, E. M. Sion, I. Hubeny, F. H. Cheng, & P. Szkody</i>	355	40-G9
INTERSTELLAR DUST ABSORPTION FEATURES IN THE INFRARED SPECTRUM OF HH 100-IR: SEARCHING FOR THE NITROGEN COMPONENT OF THE ICES <i>D. C. B. Whittet, R. G. Smith, A. J. Adamson, D. K. Aitken, J. E. Chiar, T. H. Kerr, P. F. Roche, C. H. Smith, & C. M. Wright</i>	363	41-A6
R CANIS MAJORIS—REVISITED <i>M. B. K. Sarma, P. Vivekananda Rao, & K. D. Abhyankar</i>	371	41-B3
THE EFFECTS OF CONVECTION ZONE TURBULENCE ON THE TILT ANGLES OF MAGNETIC BIPOLES <i>D. W. Longcope & G. H. Fisher</i>	380	41-C1
CHROMOSPHERIC EVAPORATION IN FOUR SOLAR FLARES OBSERVED BY YOHKOH <i>M. D. Ding, T. Watanabe, K. Shibata, T. Sakurai, T. Kosugi, & C. Fang</i>	391	41-D1

1996 FEBRUARY 20, Number 2

THE RADIATIVE ASSOCIATION OF Li^+ AND H, Li AND H^+ , AND Li AND H <i>A. Dalgarno, K. Kirby, & P. C. Stancil</i>	397	44-C1
THE LITHIUM CHEMISTRY OF THE EARLY UNIVERSE <i>P. C. Stancil, S. Lepp, & A. Dalgarno</i>	401	44-C9
AN ABSOLUTE MEASUREMENT OF THE COSMIC MICROWAVE BACKGROUND RADIATION TEMPERATURE AT 20 CENTIMETERS <i>S. T. Staggs, N. C. Jarosik, D. T. Wilkinson, & E. J. Wollack</i>	407	44-D5
SIMULATING OUR COSMOLOGICAL NEIGHBORHOOD: MOCK CATALOGS FOR VELOCITY ANALYSIS <i>Tsafrir Kolatt, Avishai Dekel, Galit Ganan, & Jeffrey A. Willick</i>	419	44-E7

CONTENTS

v

	Page	Fiche
STRUCTURE AND DYNAMICS OF THE COMA CLUSTER <i>Matthew Colless & Andrew M. Dunn</i>	435	44-F13
THE STELLAR HALO OF M104. I. A SURVEY FOR PLANETARY NEBULAE AND THE PLANETARY NEBULA LUMINOSITY FUNCTION DISTANCE <i>H. C. Ford, X. Hui, R. Ciardullo, G. H. Jacoby, & K. C. Freeman</i>	455	45-A8
SPECTROSCOPY OF H II REGIONS IN M81 GROUP DWARF GALAXIES <i>Bryan W. Miller & Paul Hodge</i>	467	45-B10
THE OBSERVATIONAL APPEARANCE OF SLIM ACCRETION DISKS <i>Ewa Szuszkiewicz, Matthew A. Malkan, & Marek A. Abramowicz</i>	474	45-C6
EVOLUTION OF AN ACCRETION DISK IN AN ACTIVE GALACTIC NUCLEUS <i>Aneta Siemiginowska, Bożena Czerny, & Vadim Kostyunin</i>	491	45-D12
RELATIVISTIC ACCRETION DISKS: LOW-FREQUENCY MODES AND FRAME DRAGGING <i>James R. Ipser</i>	508	45-F5
FORMATION AND RADIATION ACCELERATION OF PAIR PLASMOIDS NEAR GALACTIC BLACK HOLES <i>Hui Li & Edison P. Liang</i>	514	45-G1
ARE LYMAN-ALPHA CLOUDS ASSOCIATED WITH LOW SURFACE BRIGHTNESS GALAXIES? <i>M. Rauch, R. J. Weymann, & S. L. Morris</i>	518	45-G9
SPECTROPHOTOMETRY OF BLUE COMPACT GALAXIES WITH BROAD EMISSION LINES: EVIDENCE FOR HIGH-VELOCITY GAS MOTION <i>Yuri I. Izotov, Andrew B. Dyak, Frederic H. Chaffee, Craig B. Foltz, Alexei Y. Kniazev, & Valentin A. Lipovetsky</i>	524	46-A7
THE REVISED M_{g_2} INDEX AS A METALLICITY INDICATOR FOR STELLAR SYSTEMS: GIANT ELLIPTICAL GALAXIES AND BULGES <i>E. Casuso, A. Vazdekis, R. F. Peletier, & J. E. Beckman</i>	533	46-B6
THE KINEMATICS OF THE IONIZED AND MOLECULAR HYDROGEN IN THE STARBURST GALAXY NGC 253 <i>F. Prada, A. Manchado, Blaise Canzian, R. F. Peletier, C. D. McKeith, & J. E. Beckman</i>	537	46-B13
LITHIUM PROCESSING IN HALO DWARFS, AND T_{eff} , [Fe/H] CORRELATIONS ON THE SPITE PLATEAU <i>Sean G. Ryan, Timothy C. Beers, Constantine P. Deliyannis, & Julie A. Thorburn</i>	543	46-C8
A LARGE-SCALE CO SURVEY TOWARD W3, W4, AND W5 <i>Seth W. Digel, David A. Lyder, Amy J. Philbrick, Daniel Puche, & Patrick Thaddeus</i>	561	46-E2
LIMITS ON REPORTED TRANSIENT EMISSION EVENTS NEAR 0.5 MeV FROM THE CRAB AND 1E 1740.7-2942 <i>D. M. Smith, M. Leventhal, R. Cavallo, N. Gehrels, J. Tueller, & G. Fishman</i>	576	46-F6
IUE OBSERVATIONS OF YOUNG CLUSTERS IN THE LARGE MAGELLANIC CLOUD <i>Eric M. Wilcots, Paul W. Hodge, & Nichole King</i>	580	46-F13
LITHIUM IN BROWN DWARF CANDIDATES: THE MASS AND AGE OF THE FAINTEST PLEIADES STARS <i>Gibor Basri, Geoffrey W. Marcy, & James R. Graham</i>	600	47-B3
SPATIAL VARIATION OF THE 3.29 AND 3.40 MICRON EMISSION BANDS WITHIN REFLECTION NEBULAE AND THE PHOTOCHEMICAL EVOLUTION OF METHYLATED POLYCYCLIC AROMATIC HYDROCARBONS <i>C. Joblin, A. G. G. M. Tielens, L. J. Allamandola, & T. R. Geballe</i>	610	47-C2
ASSESSMENT OF THE POLYCYCLIC AROMATIC HYDROCARBON-DIFFUSE INTERSTELLAR BAND PROPOSAL <i>F. Salama, E. L. O. Bakes, L. J. Allamandola, & A. G. G. M. Tielens</i>	621	47-D3
PREDICTING BIG BANG DEUTERIUM <i>N. Hata, R. J. Scherrer, G. Steigman, D. Thomas, & T. P. Walker</i>	637	47-E9
A DYNAMICAL MONTE CARLO SIMULATION OF A COLLISIONLESS SHOCK <i>Jeffrey M. Knerr, J. R. Jokipii, & Donald E. Ellison</i>	641	47-F3
FAR OUTER GALAXY H II REGIONS <i>Alexander L. Rudolph, Jan Brand, Eugène J. de Geus, & Jan G. A. Wouterloot</i>	653	47-G4
THE DEEPLY EMBEDDED SOURCE THAT DRIVES THE PROTOSTELLAR OUTFLOW IN AFGL 437: EVIDENCE FROM NEAR-INFRARED POLARIMETRIC IMAGING <i>David S. Weintraub & Joel H. Kastner</i>	670	48-A10
COMPUTING THE DELAYED COLLAPSE OF HOT NEUTRON STARS TO BLACK HOLES <i>Thomas W. Baumgarte, Stuart L. Shapiro, & Saul A. Teukolsky</i>	680	48-B9

	Page	Fiche
DOUBLE-CORE EVOLUTION. IX. THE INFALL OF A MAIN-SEQUENCE STAR THROUGH THE ENVELOPE OF ITS INTERMEDIATE-MASS RED GIANT COMPANION <i>James L. Terman & Ronald E. Taam</i>	692	48-C11
NEW GLOBAL INSTABILITIES OF THE RIEMANN ELLIPSOIDS <i>Norman R. Lebovitz & Alexander Lifschitz</i>	699	48-D7
THE DYNAMIC STABILITY OF ROTATING PROTOSTARS AND PROTOSTELLAR DISKS. I. THE EFFECTS OF THE ANGULAR MOMENTUM DISTRIBUTION <i>Brian K. Pickett, Richard H. Durisen, & Glen A. Davis</i>	714	48-E12
SCALING RELATIONS FOR THE TURBULENT, NON-SELF-GRAVITATING, NEUTRAL COMPONENT OF THE INTERSTELLAR MEDIUM <i>Robert C. Fleck, Jr.</i>	739	49-A1
ESTIMATING THE CRAMÉR-RAO BOUND FOR ASTRONOMICAL OBSERVATIONS: APPLICATION TO THE RICHARDSON-LUCY ALGORITHM <i>T. S. Zacheo, R. A. Gonsalves, P. Nisenson, & S. M. Ebstein</i>	742	49-A8
BATSE GAMMA-RAY BURST LINE SEARCH. IV. LINE CANDIDATES FROM THE VISUAL SEARCH <i>D. L. Band, S. Ryder, L. A. Ford, J. L. Matteson, D. M. Palmer, B. J. Teegarden, M. S. Briggs, W. S. Paciesas, G. N. Pendleton, & R. B. Preece</i>	746	49-B3
POSSIBLE EVIDENCE FOR PULSED EMISSION OF HIGH-ENERGY GAMMA RAYS BY PSR B0656+14 <i>P. V. Ramanamurthy, C. E. Fichtel, D. A. Kniffen, P. Sreekumar, & D. J. Thompson</i>	755	49-C1
GODDARD HIGH-RESOLUTION SPECTROGRAPH OBSERVATIONS OF PROCYON AND HR 1099 <i>Brian E. Wood, Graham M. Harper, Jeffrey L. Linsky, & Robert C. Dempsey</i>	761	49-C10
EQUILIBRIUM OF TWISTED HORIZONTAL MAGNETIC FLUX TUBES <i>T. Emonet & F. Moreno-Inertis</i>	783	49-E7
ON THE STORAGE OF MAGNETIC FLUX TUBES AT THE BASE OF THE SOLAR CONVECTION ZONE <i>Antonio Ferriz-Mas</i>	802	49-G3
THE LARGE-SCALE DENSITY STRUCTURE OF THE SOLAR CORONA AND THE HELIOSPHERIC CURRENT SHEET <i>Madhulika Guhathakurta, Thomas E. Holzer, & R. M. MacQueen</i>	817	50-A9
SOLAR DYNAMO SURFACE WAVES IN THE PRESENCE OF A PRIMORDIAL MAGNETIC FIELD: A 30 GAUSS UPPER LIMIT IN THE SOLAR CORE <i>Nicholas Boruta</i>	832	50-B13
ON THE HIGH-FREQUENCY BEHAVIOR OF ACOUSTIC WAVES WITHIN THE SUN <i>Gary H. Price</i>	850	50-D7
ERRATUM		
AN UPDATED CALIBRATION OF THE ROSAT PSPC PARTICLE BACKGROUND FOR THE ANALYSIS OF DIFFUSE AND EXTENDED SOURCES <i>P. P. Plucinsky, S. L. Snowden, U. G. Briel, G. Hasinger, & E. Pfefferman</i>	861	50-E8
ABSTRACTS OF THE ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 1996 MARCH		
A 1.425 GHz ATLAS OF THE IRAS BRIGHT GALAXY SAMPLE, PART II <i>J. J. Condon, G. Helou, D. B. Sanders, & B. T. Soifer</i>	862	50-E13
THE CANADA-FRANCE-HAWAII TELESCOPE IMAGING SURVEY OF BL LACERTAE OBJECTS. I. PROPERTIES OF THE HOST GALAXIES <i>Ron Wurtz, John T. Stocke, & H. K. C. Yee</i>	862	50-E13
GROUND-BASED GAMMA-RAY BURST FOLLOW-UP EFFORTS: RESULTS OF THE FIRST TWO YEARS OF THE BATSE/COMPTEL/NMSU RAPID RESPONSE NETWORK <i>Bernard J. McNamara, Thomas E. Harrison, J. Ryan, R. M. Kippen, M. McConnell, J. Macri, C. Kouveliotou, G. J. Fishman, C. A. Meegan, D. A. Green, D. M. Koranyi, J. P. Warner, E. M. Waldrum, L. Hanlon, K. Bennett, T. A. Th. Spoelstra, V. G. Metlov, N. V. Metlova, E. Feigelson, A. J. Beasley, D. M. Palmer, S. D. Barthelmy, Dale E. Gary, E. T. Olsen, S. Levin, P. G. Wunnier, M. A. Janssen, The MACHO Collaboration, J. Borovicka, P. Pravec, R. Hudec, & M. J. Coe</i>	863	50-E14
THE PARKES-MIT-NRAO (PMN) SURVEYS. VIII. SOURCE CATALOG FOR THE ZENITH SURVEY ($-37^{\circ}0 < \delta < -29^{\circ}0$) <i>Alan E. Wright, Mark R. Griffith, Andrew J. Hunt, Euan Troup, B. F. Burke, & R. D. Ekers</i>	864	50-F1
ABSORPTION LINE PROFILE VARIATION AMONG THE O STARS. I. THE INCIDENCE OF VARIABILITY <i>A. W. Fullerton, D. R. Gies, & C. T. Bolton</i>	864	50-F1
THE CHEMICAL COMPOSITION OF FIELD RR LYRAE STARS. I. IRON AND CALCIUM <i>David L. Lambert, James E. Heath, Michael Lemke, & Jeremy Drake</i>	865	50-F2
THE NARROW EMISSION LINES OF T TAURI STARS <i>C. C. Batalha, N. M. Stout-Batalha, G. Basri, & M. A. O. Terra</i>	865	50-F2

CONTENTS

vii

	<i>Page</i>	<i>Fiche</i>
AN INFRARED SPECTRAL ATLAS OF ARCTURUS FOR THE RANGE 10750-11500 cm^{-1} (8690-9300 Å) <i>Lloyd Wallace & Kenneth Hinkle</i>	866	50-F3
INFRARED SPECTRA OF HOT HF AND DF <i>R. S. Ram, Z. Morbi, B. Guo, K.-Q. Zhang, P. F. Bernath, J. Vander Auwera, J. W. C. Johns, & S. P. Davis</i>	866	50-F3
FOKKER-PLANCK EQUATIONS OF STOCHASTIC ACCELERATION: A STUDY OF NUMERICAL METHODS <i>Brian T. Park & Vahé Petrosian</i>	866	50-F3
INDEX TO VOLUMES 456-458, PARTS 1 AND 2	i	51-A1